

A FINANCIAL FEASIBILITY STUDY OF FIBER OPTIC INFRASTRUCTURE IN REGION A – WEST JAVA PT XYZ – A CASE STUDY

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Abstract

PT XYZ is a provider of high-quality internet service via fiber optic cables. The company plans to develop a new 500 kilometer fiber optic network in Region A -West Java to serve customer segments business to business (B2B), business to government (B2G), and business to consumer (B2C). This article intends to conduct a financial feasibility study in connection with the development of the project. This research method is qualitative with a case study type. The nature of this research is descriptive. This research was conducted in 2023 at PT XYZ. The types of data used in this research are primary data and secondary data. Primary data collection techniques use in-depth interview techniques; while the secondary data collection technique uses the study-desk method. The data analysis method in this article uses a financial feasibility study, with five financial analysis tools, namely NPV, IRR, DPP, PI, and WACC. The research results show that the development of fiber optic infrastructure in Region A by PT XYZ is feasible based on NPV, IRR, DPP, PI and WACC calculations. The implication of this research is, for the management of PT XYZ, to make it even more feasible, steps should be taken in accordance with controlling action, both controlling revenue and controlling expenditure.

Keywords: Fiber optic, NPV, PI, IRR, DPP, WACC

Introduction

PT XYZ is a high-speed internet provider company. This company is preparing to do this business in one of the regions in Indonesia, namely Region A which is located in West Java province. In terms of population, West Java is the province with the largest population in Indonesia. However, the population distribution is relatively uneven, because it is more concentrated in urban areas. Likewise, economic infrastructure, especially telecommunications infrastructure, has relatively wide gaps between cities and villages, between cities and regencies.

According to APJII (2023), *“In many parts of West Java, there are still significant gaps in internet coverage, which affects the region's socio-economic development. This is due in large part to a digital divide, where urban areas benefit from reliable fiber optic connections while rural areas often rely on wireless technology, which may not offer the same level of reliability or speed. This lack of uniform and reliable coverage is a significant barrier to progress and poses a challenge that needs to be addressed.”*

This article intends to conduct a financial feasibility study on PT XYZ with its main business as a provider of high-quality internet service via fiber optic cables. PT XYZ plans to develop a new 500kilometer fiber optic network in Region A -West Java to serve customer segments business to business (B2B), business to government (B2G), and business to consumer (B2C).

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The current state of internet services in Region A which is located in West Java, poses several challenges. Despite urban areas having access to fiber optic services, many rural areas experience internet "blind spots" with no provider coverage. Even where services exist, users report problems with quality, especially during peak hours. Additionally, in certain areas, there is a lack of competition, with only a single provider available. These issues combine to create a significant problem for the market, and this is an opportunity for PT XYZ to solve this problem.

There are a number of previous studies regarding feasibility studies, but the industrial sector or sub-sector studied is different from this research. Among other things, research by Yoomak et al (2019) evaluated the performance and economic evaluation of solar rooftop systems in Thailand. Research by Kusumah et al (2002) examined business feasibility studies in the consulting services and legal assistance sector, case study on Bilik Hukum. Arifin and Imaroh's research (2021) analyzes the investment portfolio at Data Center Information Technology, case study on PT Telkominfra. Kriswanto (2011) conducted an analysis of NPV, IRR, PI and DPB at Golden Restaurant Jakarta. Wibowo and Sumirat's research (2021) is to conduct an investment analysis for the sub-marine power cable project between Behind Padaang Island and Sambu Island.

Based on previous studies, the research novelty in this study is research on an industrial sub-sector whose financial feasibility is analyzed, namely the Internet Service Provider (ISP) sub-sector in a project to add a fiber optic network in a new region.

This study focuses on the financial feasibility of a fiber optic infrastructure in in Region A - West Java by PT XYZ. This study is conducted on an existing company, namely PT XYZ. Operational and marketing aspects of PT XYZ will not be explored in depth.

The objective of this research is to determine the financial feasibility of developing a fiber optic infrastructure development in Region A - West Java by PT XYZ. More specifically, the objectives of this study are as follow: (1) Compute the Net Present Value for developing fiber optic infrastructure in Region A – West Java. (2) Compute the Internal Rate of Return value for this project. (3) Compute the number of Discounted Payback period for this project. (4) Compute Profitability Index for this project. (5) Determine the financial feasibility of a fiber optic infrastructure development in Region A - West Java by PT XYZ.

Financial Tools and Conceptual Framework

The financial analysis will be analyzed by five of financial tools. The financial tools analysis using : (1) Net Present Value (NPV), (2) Internal Rate of Return (IRR), (3) Discounted Payback Period (DPP). (4) Profitability Index (PI), and (5) Weighted Average Cost of Capital (WACC).

1) Financial Feasibility Study

a) Net Present Value (NPV)

According to Martinelli et al (2019), "*A traditional and very efficient technique regarding capital expenditure is the Net Present Value (NPV). NPV indicate the viability of a project by deducting the initial investment cost from the present value of a uniform series of future capital, using the appropriate interest rate. Therefore, the higher the NPV, the greater the attractiveness of the project.*" The formula for NPV is as follows:

$$NPV = \sum_{t=1}^n \frac{CF_t}{(1 + K)^t} - I_0 + \sum_{t=1}^n \frac{I_t}{(1 + K)^t}$$

Where:

NPV : Net Present Value

CF_t : Cash flows in each project period t (cash benefit)

K : Discounted rate represented by the minimum profitability required by the project

I_0 : Investment value at time zero (beginning of the project)
 I_t : Investment value in each subsequent period.

b) Profitability Index (PI)

According to Martinelli et al (2019), “*The Profitability Index (PI) is obtained by dividing the present value of the net cash benefits by the present value of the capital disbursements. In other words, PI is the quotient of the present value of the cash inflows by the present value of the cash outflows.*” The formula for PI is as follows:

$$PI = \frac{\text{Present value of benefits}}{\text{Present value of cash disbursements}}$$

c) Internal Rate of Return (IRR)

According to Martinelli et al. (2019), “*Internal Rate of Return (IRR) represents the equivalent periodic return on investment. Generally, the IRR is defined for annual periods and corresponds to a discount rate that equals the current value of the cash inflows to the current value of the investment.*” The formula for IRR is as follows:

$$IRR = I_0 + \sum_{t=1}^n \frac{I_t}{(1 + K)^t} - I_0 + \sum_{t=1}^n \frac{FC_t}{(1 + K)^t}$$

Where:

IRR : The Internal Rate of Return
 I_0 : Investment value at time zero
 I_t : Investment value in cash subsequent period
 K : Rate of periodic equivalent annual profitability
 CF : Cash flows in each project period t (cash benefit)

d) Discounted Payback Period (DPP)

According to Martinelli et al. (2019), “*Discounted Payback Period (DPP) indicates the number of years required to recover the initial investment. Moreover, it is possible to calculate the present value of all cash flows by the discount rate.*” The formula for DPP is as follows:

$$DPP = \text{minimum } \{j\} \sum_{k=1}^j \frac{CF_k}{(1 + MAR)^k} \geq CF_0$$

Where:

CF_k : Project cash flow at time k
 MAR : The discount rate represented by the minimum profitability required by the project
 CF_0 : Project cash flow at time 0.

e) Weighted Average Cost of Capital (WACC)

According to Wibowo and Sumirat (2022), “*Related to business feasibility, capital composition is an important element. Broadly speaking, the capital composition consists of equity and loans from financial institutions. This composition between equity and loans will affect the value of cost of capital or cost of capital in this feasibility calculation. The cost of capital, in general, is the real cost that has been used by the company to obtain funding sources from debt, preferred stock, common stock or retained earnings to fund investments. This cost of capital also reflects the minimum rate of return of an investment that is worth obtaining in relation to its risk; with the aim of optimizing the value of the company and its*

shareholders. The concept of cost of capital is related to long-term decisions related to fixed assets or capital budgeting issues.”

According to Gitman (2012), *“The cost of capital is not only the cost of debt or the cost equity but is calculated through the weighted weight of all components in the capital structure and will ultimately be used as a discount rate in the project feasibility assessment using the formula.”*

Equation of Gitman (2012) is general formulation of the WACC

$$WACC = CoD \frac{D}{(D + E)} + CoE \frac{E}{(D + E)}$$

WACC : Weighted Average Cost of Capital

D : Debt

E : Equity

CoD : Cost of Debt

CoE : Cost of Equity

(Gitman, 2012)

The important thing in relation to WACC is the company's beta. According to Bowman and Bush (2004), *“A company's beta is a measure of the volatility, or systematic risk of a security when compared to the broader market. A company's beta measures how the market value of a company's equity changes as the overall market changes. The company's beta is used in the Capital Asset Pricing Model (CAPM).”*

According to Clayman et al (2012), *“The challenge is to estimate a beta for a (private) company that is not publicly traded or to estimate a beta for a project that is not the average or typical project of a publicly traded company. The reason for this distinction is because market data is not available for private companies or non-traded firm, so researchers cannot estimate beta for private companies using stock prices. Estimating a beta in these cases requires proxying for the beta by using the information on the project or company combined with a beta of a publicly traded company.”*

According to Clayman et al (2012), *“The beta of a (private) company or project is affected by the systematic components of business risk and by financial risk. Both of these factors affect the uncertainty of the cash flow the company or project. The business risk of a company or projects is the risk related to the uncertain of revenues, referred to as sales risk, and as operating risk, which is the risk attributed to the company’s operating cost structure”*

According to Clayman et al (2012), *“There are two steps in computing beta for private company or project. Step 1 is unlever the beta using the competitor’s Debt Equity Ratio (DER). Step 2: Relever the beta using the privately-held company’s DER”*

Step 1: Unlever the beta using the competitor’s DER

Associated with computing beta fo a privately-held firm, according to Clayman et al (2012), *“We begin by estimating the levered beta of the comparable company, $\beta_{L,comparable}$. Using the capital structure and tax rate of the leverage company, we estimate the asset beta for the comparable company, $\beta_{U,comparable}$ “*

$$\beta_{L,project} = \beta_{U,comparable} \left[1 + \left((1 - t_{project}) \frac{D_{project}}{E_{project}} \right) \right]$$

Source: Clayman et al (2012)

Steps 2: Relever the beta using the privately-held company's DER.F

According to Clayman et al (2012), "We then consider the financial leverage of the project or company and calculate its equity risk, $B_{Lproject}$."

$$\beta_{L,project} = \beta_{U,comparable} \left[1 + \left((1 - t_{project}) \frac{D_{project}}{E_{project}} \right) \right]$$

Source: Clayman et al (2012)

Where:

t = tax rate

D/E = debt to equity ratio (DER)

f) Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) calculation aims to estimate or approximate the amount of security returns. The CAPM calculation is carried out in the following stages (Hassan et al., 2019):

(1) Calculate the profit level of each share

$$R_i = \frac{P_t - P_{t-1}}{P_{t-1}}$$

(2) Calculate the market profit rate

$$R_m = \frac{IHS G_t - IHS G_{t-1}}{IHS G_{t-1}}$$

(3) Calculating stock beta

$$\beta = \sum_{t-1}^N \frac{(R_i - \bar{R}_i)(R_m - \bar{R}_m)}{(R_m - \bar{R}_m)}$$

(4) Calculate the risk-free rate of return (Rf) via the BI rate

(5) Calculate the expected level of profit through CAPM

$$E(R_i) = R_f + \beta_i [E(R_m) - R_f]$$

Stock estimates based on individual returns and expected returns are categorized as efficient stocks and inefficient stocks.

Methods

This research uses a qualitative approach (Cooper & Schindler, 2014: 144). Among the five types of qualitative research methods (phenomenological, grounded theory, ethnography, narrative research, and case studies), this study chose the case study method. According Cooper and Schindler (2014: 144) "a qualitative research is "an interpretive research technique that seeks to describe, code, and translate, with an emphasis on meaning rather than frequency, regarding research objective that more or less occur naturally in social phenomena."

The nature of the research is descriptive (Cooper & Schindler, 2014: 656). The level of intervention or level of interference by researchers in this study is minimal (minimum interference (Sekaran & Bougie, 2016).

This research was conducted at PT XYZ, a company with its main business as a provider internet service provider. PT XYZ is headquartered in Region A which is located in West Java. The research will be carried out in 2023.

The type of data, based on how to obtain data of article, the types of data used in this study are primary data and secondary data. Regarding primary data collection techniques, this study used in-depth interview techniques (Cooper & Schindler, 2014:664). Sources for (in-depth interviews) were selected from PT XYZ's internal sources. Meanwhile, secondary data collection techniques in this study used the study desk method (Sugiyono, 2013).

This research instrument consists of an Interview Guide. The research instrument was in the form of an interview guide. The type of interview in this study was in-depth interview, using individual interview techniques.

The method of data analysis in this article, procedurally, uses qualitative analysis techniques from Miles, Huberman, and Saldana (2014). Miles et al (2014: 33) suggests that there are four components in qualitative data analysis, namely data collection, data condensation, data display, and conclusion: drawing/verifying. In substance, the data in this study were analyzed using the financial feasibility study. There are five tools for financial analysis, i.e NPV, IRR, DPP, PI, and WACC. Data analysis describes a measurement plan, in this case the operationalization concerns of research tools, which is designed to answer research questions.

Results and Discussion

Weighted Average Cost of Capital

PT XYZ is a private company with debt is zero, $WACC = \text{Cost of Equity} + \text{Cost of Debt (after Tax)}$ and so Cost of Equity uses the CAPM Formula.

Table 1. Present CAPM

Competitors	Tax Rate	DER	Levered BETA	Unlevered BETA
PT Telekomunikasi Indonesia Tbk	22%	0.53	0.20	0.14
PT XL Axiata Tbk	22%	1.64	0.47	0.21
PT Smartfren Telecom Tbk	22%	1.61	1.60	0.71
Average Unlevered BETA				0.35

Private Company	Tax Rate	DER	Unlevered BETA	Levered BETA
PT XYZ	22%	0.00	0.35	0.3520

Rf	5.75%
BETA Investment	0.35
Equity Risk Premium	4.19%
rE = cost of Equity	7.22%

Source: writer's own work

In the result cost of equity is 7.22% and so the WACC with cost of debt is zero, WACC is 7.22%.

Net Present Value (NPV)

Table 2 presents financial data starting from year zero (Y0) to year five (Y5) in an effort to calculate Net Present Value (NPV). This method is a measure of capital expenditure decisions, the present value of which is described as the after-tax free cash flow after initial project expenditures.

Table 2. Net Present Value

Year	0	1	2	3	4	5
Fixed Capital Investment	-Rp55,317,451,667					
Sales	Rp577,947,686	Rp32,202,543,630	Rp84,184,770,691	Rp134,838,479,831	Rp184,534,146,928	Rp233,325,498,853
Cost of Sales	-Rp422,957,111	-Rp13,968,927,701	-Rp28,097,446,769	-Rp41,689,872,952	-Rp55,512,892,104	-Rp69,575,481,932
Cash Operating Expenses	-Rp1,830,185,701	-Rp20,158,472,056	-Rp44,423,658,111	-Rp70,314,089,005	-Rp98,081,787,293	-Rp127,794,083,472
Depreciation expense	-Rp3,457,973,611	-Rp14,265,138,715	-Rp15,136,600,751	-Rp16,037,257,401	-Rp13,480,966,783	-Rp3,517,376,825
Operating income	-Rp5,133,168,737	-Rp16,189,994,842	-Rp3,472,934,940	Rp6,797,260,473	Rp17,458,500,749	Rp32,438,556,624
Tax on operating income	Rp1,129,297,122	Rp3,561,798,865	Rp764,045,687	-Rp1,495,397,304	-Rp3,840,870,165	-Rp7,136,482,457
NOPAT = net operating profit after tax	-Rp4,003,871,615	-Rp12,628,195,976	-Rp2,708,889,253	Rp5,301,863,169	Rp13,617,630,585	Rp25,302,074,167
Add back depreciation expense	Rp3,457,973,611	Rp14,265,138,715	Rp15,136,600,751	Rp16,037,257,401	Rp13,480,966,783	Rp3,517,376,825
OCF = operating cash flow	-Rp545,898,004	Rp1,636,942,739	Rp12,427,711,498	Rp21,339,120,570	Rp27,098,597,367	Rp28,819,450,992
Cash flows	-Rp55,863,349,671	Rp1,636,942,739	Rp12,427,711,498	Rp21,339,120,570	Rp27,098,597,367	Rp28,819,450,992
Discount rate	7.22%	7.22%	7.22%	7.22%	7.22%	7.22%
PRESENT VALUE	-Rp55,863,349,671	Rp1,526,645,494	Rp10,809,375,097	Rp17,309,744,379	Rp20,500,557,040	Rp20,333,365,405
NET PRESENT VALUE	Rp14,616,337,744					

Source: writer's own work

Assumption of this NPV:

1. Projection based on forecast from the internal stakeholder of PT XYZ with combined supporting justification by macro external analysis (PESTLE) and external industrial analysis (Porter's Five Forces Analysis, CPM Analysis).
2. PT XYZ is an internet service provider that was established in 2016, so they already have a track record, good will, company branding, and historical performance.
3. One of the reasons of this development is to fulfil the opportunity of PT XYZ on new coverage area that PT XYZ already has customer leads.
4. The investment capex of Y0 development need 9 months, so in Y0 its still have 3 months to do the sales and get the revenue.
5. Total additional capital is Rp 60,000,000,000, it will separate into 2 investments, which are capital investment and working capital investment.
6. The entire capital investment Rp 55,317,451,667 will be used to deploy new Fiber optic infrastructure along 500 KM on Region A – West Java, consisting of material :
 - a. 500 KM Cable and HDPE
 - b. 10.000 Pole Infrastructure
7. Investment of working capital is Rp 4,136,650,329 will be used to cover the operating expense in beginning period.
8. Sales mix, market penetration rate, and churn rate projection of PT XYZ after the development done.

a. Customer's projection

Table 3. Customer's projection

Y0											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
-	-	-	-	-	-	-	-	-	58	171	355
Y1											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
699	1,024	1,449	1,762	2,566	3,373	4,183	4,994	5,808	6,625	7,444	8,266
Y2											

M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
9,090	9,425	9,752	10,568	11,387	12,209	13,033	13,859	14,689	15,519	16,353	17,188
Y3											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
18,026	18,302	18,575	19,407	20,240	21,076	21,914	22,755	23,598	24,443	25,291	26,142
Y4											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
26,994	27,210	27,425	28,271	29,119	29,970	30,823	31,678	32,535	33,394	34,255	35,119
Y5											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
35,986	36,144	36,300	37,161	38,023	38,887	39,754	40,623	41,494	42,368	43,243	44,122

Source : writer's own work

b. Table 4. ARPU (Average Revenue Per User) Projection per Month in Y0 until Y5

Table 4. ARPU (Average Revenue Per User)

Y0											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
-	-	-	-	-	-	-	-	-	1,287,262	972,461	950,128
Y1											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
959,391	894,738	720,335	753,894	838,325	753,153	700,619	664,088	637,629	617,560	601,801	589,150
Y2											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
578,599	539,242	543,037	574,981	567,337	560,670	554,800	549,587	544,923	540,436	536,373	532,681
Y3											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
529,290	508,602	511,564	531,117	527,997	525,082	522,377	519,850	517,483	515,261	513,169	511,214
Y4											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
509,166	494,526	496,686	511,074	509,218	507,452	505,770	504,165	502,494	500,896	499,367	497,906
Y5											
M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
496,495	484,956	486,765	498,465	497,017	495,623	494,281	492,986	491,737	490,530	489,363	488,241

Source : writer's own work

Notes : ARPU existing PT XYZ 2023 before this projection is Rp 1,300,000
 ARPU having downturn because the target market of the company are business to business, business to government, and business to consumer. With the ambitious number of customers, the company will focus on the consumer segment that give a low revenue but have a big number and by the time number of consumer segment will going bigger and it will decrease the ARPU.

c. Table 5. Revenue Projection (Total Customer per month x ARPU per month compound in a year)

Table 5. Revenue Projection

Year	0	1	2	3	4	5
Revenue	Rp577,947,686	Rp32,202,543,630	Rp84,184,770,691	Rp134,838,479,831	Rp184,534,146,928	Rp233,325,498,853

Source : writer's own work

1. Cost of sales and cash operating expense of this NPV Projection based on forecast from the internal stakeholder of PT XYZ with historical performance of PT XYZ ratio, and having downturn ratio between revenue and cost of sales also for cash operating expense, when quantity of customer increasing. More over customer increase more bigger ratio between revenue and cost of sales also for cash operating expense.
 Table 2 shows the NPV value of PT XYZ is Rp 13,398,272,600. This means that in terms of the NPV indicator is feasible.

Internal rate of return (IRR) analysis

Internal rate of return (IRR) is a method that can be used by companies to analyze the economic performance of a company. The IRR method is a method commonly used to display economic rates of return. The IRR value must be higher than the WACC value, or $IRR \geq WACC$. The IRR of PT XYZ from 0 years to the fifth year is presented in Table 6.

Table 6. IRR Value at PT XYZ in the First Five Years

Year	Cash Flows	IRR
0	-Rp55,863,349,671	14.31%
1	Rp1,636,942,739	
2	Rp12,427,711,498	
3	Rp21,339,120,570	
4	Rp27,098,597,367	
5	Rp28,819,450,992	

Source: writer's own work

Table 1.3 shows the IRR value of PT XYZ from 0 years to the fifth year is 13.25%. Mean IRR (13.25%) \geq WACC (7.22%). This means that in terms of the IRR indicator is feasible.

Discounted Payback period (DPP) analysis

The Discounted Payback period (DPP) on the PT XYZ fiber optic infrastructure project is presented in table 7.

Table 7. Discounted Payback Period (DPP)

Year	Present value	Cumulative present value cash flows	DPP
0	-Rp55,863,349,671	-Rp55,863,349,671	4.28 years
1	Rp1,526,645,494	-Rp54,336,704,177	
2	Rp10,809,375,097	-Rp43,527,329,079	
3	Rp17,309,744,379	-Rp26,217,584,701	
4	Rp20,500,557,040	-Rp5,717,027,661	
5	Rp20,333,365,405	Rp14,616,337,744	

Source: writer's own work

The company's financial projections is a maximum of five years, whereas based on DPP calculations it is 4.48 years. This shows that this project is feasible when viewed from the DPP. Meanwhile, Table 8 does not take into account the time value of money ($i=0\%$), so it is called the payback period.

Table 8. Payback Period (PP)

Year	Present value	Cumulative cash flows	PP
0	-Rp55,863,349,671	-Rp55,863,349,671	3.75 years
1	Rp1,636,942,739	-Rp54,226,406,932	
2	Rp12,427,711,498	-Rp41,798,695,434	
3	Rp21,339,120,570	-Rp20,459,574,864	
4	Rp27,098,597,367	Rp6,639,022,503	
5	Rp28,819,450,992	Rp35,458,473,495	

Source: writer's own work

Table 8 shows that the payback period (without taking into account time money of value) for investment by PT XYZ is 3.91 years. Thus, the payback period (3.91 years) is faster than the discounted payback period (DPP).

When compared between the Discounted Payback Period (DPP) as presented in table 1.4 with the Payback period (PP), it shows that DPP is longer in value (4.48 years) compared to PP (3.91 years). This shows that the DPP approach is more conservative than the PP approach.

Profitability index (PI) analysis

Profitability Index (PI) is the present value of cash flow compared to the investment value. If the PI calculation result is greater than 1 ($P > 1$) or PI is equal to 1 ($PI = 1$), then the investment is worth carrying out. Meanwhile, if PI is smaller than 1 ($P < 1$), then the project is rejected, because it is not feasible to run (Agustin, 2021).

Table 9. Profitability Index

Year	Profitability Index
1-5	1,22

Source: writer’s own work

Table 9 shows that the PI value is 1.22. This means the PI value is greater than the number 1 (one). This means that the ISP project calculated using PI is feasible.

Summary of Financial Analysis

Table 10 The summary of financial feasibility study shows that all financial indicator has conclude the project is financially feasible.

Table 10. Summary of Financial Feasibility Study

Financial Indicators	Results	Conclusion
Net Present Value (NPV)	NPV= Rp13,398,272,600 meaning NPV > 0 or NPV is positive	Feasible
Internal rate of return (IRR)	IRR (13.25%) > WACC (7.22%)	Feasible
Discounted payback period (DPP)	Discounted payback period (DPP) is 4.48 years < 5	Feasible
Profitability Index (PI)	PI is 1.22. It is means $PI > 1$	Feasible

Source: writer’s own work

Business Solution and Implementation Plan

Based on the results of this analysis, a feasible business solution can be formulated in relation to several indicators (NPV, IRR, DPP, PI, WACC, and CAPM analysis), but its achievements can still be improved.

Related to IRR. The IRR value (13.25%) is higher than WACC, so it is feasible. The difference between the IRR value (13.25%) and WACC (7.22%) is 6.03% which is good.

Based on financial indicators, it can be concluded that the ISP development project in Region A which is located in West Java Province is feasible. In fact, the trend of these indicators is projected to get better from the third to the fifth year, and it is hoped that positive growth will continue, because the trend from the third to the fifth year is not projected to experience fluctuating conditions.

Therefore, the business solution to this financial forecast does not lie in how to improve financial performance, but rather in how to strictly control it so that this financial projection is carried out well in the last five years. More financial control is needed in year 0 (zero), the first year and the second year, which tend to still have negative values, so that larger negative values do not occur. Strict control in years 0 (zero) to the second year is important, because it is the basis for development in the following years, namely the third, fourth and fifth years.

Based on this business solution, an implementation plan and justification can be formulated, with solution, time-schedule, Cost, Person in Charge (PiC), as presented in Table 11.

Table 11. Implementation Plan

Solution	PiC	Size of Cost	Time Schedule				
			Y-1	Y-2	Y-3	Y-4	Y-5
A. Controlling Revenue							
1. Control the number of prospects of at least 200% of the target to become subscriptions	Mark	S	X	X	X	X	X
2. Control the Person in Charge (PiC) so that all prospects are clear about who the PiC is.	Mark	S	X	X	X	X	X
3. Monitoring of marketing results is daily, so that the daily target is achieved at least 130% of the target	Mark	S	X	X	X	X	X
4. Control contracts with customers for a minimum of 1 (one) year	Mrk	S	X	X	X	X	X
B. Controlling Expenditure							
1. Control the daily implementation of financial SOPs	Fin	S	X	X	X	X	X
2. Control billing to customers	Fin	M	X	X	X	X	X
3. Carry out cost efficiency in all parts in a measurable manner, so that planned expenditure does not exceed financial forecasts	Fin	S	X	X	X	X	X
4. Control equipment damage and loss	Fin	M	X	X	X	X	X

Source: writer's own work

Description:

- PiC = Person in Charge
- Y-1, Y-2, Y-3, Y-4, Y-5 = Year1, Year2, Year3, Year4, Year5
- Mark = Marketing
- Fin = Finance
- L = Large cost
- M = Medium cost
- S = Small cost

Conclusion

Based on the research results and considering the problem statement, it can be concluded that the results of this study show that PT XYZ's project to develop a new 500kilometer fiber optic network in Region A -West Java to serve customer segments B2B, B2G, and B2C is financially feasible to implement. This financial feasibility is based on the calculation of five financial tools, namely NPV, PI, IRR, DPP, WACC

This research provides practical recommendations, namely: PT XYZ needs to create a better system so that the company can control revenue plans to at least achieve what has been planned in the financial forecast. PT XYZ needs to create a better system so that the company can control expenditure plans so that expenditures do not exceed what has been planned in the financial forecast. Supervision must be carried out periodically on a daily basis. Last but not least, the work system, including monitoring processes and financial work results, must be able to be monitored in real time, so that the technical solutions implemented also tend to be real time.

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